Spring school at Macquarie University, Sydney

Title: Smart Sensors, ML and AI: Remote Monitoring During Challenging Times

Organizer: Prof. Subhas Mukhopadhyay, Chair, IEEE Sensors Council New South Wales Chapter (Subhas.Mukhopadhyay@mq.edu.au)

Sponsors: IEEE Sensors Council, IEEE New South Wales Chapter, School of Engineering Macquarie University, NSW 2109, Australia

Email: Subhas.Mukhopadhyay@mq.edu.au
https://scholar.google.com/citations?user=bpwXxYEAAAAJ&hl=en

Introduction: The main focus of 2022 IEEE sensors council’s spring school is on smart sensors based remote monitoring which includes health, city and environmental parameters. The lectures will concentrate on the applications of different sensors as well as intelligent computing (machine learning and AI) and applications of internet of things. The first day will have a series of lectures on the research trends of sensor, machine learning, artificial intelligence and Internet of things today and in the future. The 2nd day will be on hands-on experimental activities where the participants will make IoT based system starting from sensors, interfacing to embedded processor, wireless communication, uploading data to cloud, data visualization and machine learning. The 2022 IEEE sensors council’s Spring school, to be held on September 19-20, 2022 and will be hosted by School of Engineering, Macquarie University, Sydney, Australia.

Plan of the school: All are in Sydney (Australia) time

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Affiliation</th>
<th>Tentative Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00pm to</td>
<td>Prof. Subhas</td>
<td>DL, IEEE SC</td>
<td>Introduction of IEEE Sensors Council and the Spring School</td>
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<tr>
<td>2:15pm</td>
<td>Mukhopadhyay</td>
<td>Macquarie University</td>
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<tr>
<td>2:15pm to</td>
<td>Prof. Subhas</td>
<td>DL, IEEE SC</td>
<td>Smart sensors and IoT for Health, City and Environmental Monitoring</td>
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<tr>
<td>3:00pm</td>
<td>Mukhopadhyay</td>
<td>Macquarie University</td>
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<tr>
<td>3:00pm to</td>
<td>Prof. Maryam</td>
<td>DL, IEEE SC IIT-Bombay, Powai, Mumbai, India</td>
<td>Sub-100 ppm Auto-calibrated Fiftyfold Range Resistive Sensor Measurement ASIC and System</td>
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<tr>
<td>4:00pm</td>
<td>Shojaei</td>
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<tr>
<td>4:00pm to</td>
<td>Prof. Sanket</td>
<td>AE, IEEE SJ BITS</td>
<td>IoT and ML Enabled Multiplexed Platform for Onsite Measurement of Water Quality Indicators</td>
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<tr>
<td>5:00pm</td>
<td>Goel</td>
<td>Pilani Hyderabad, India</td>
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<tr>
<td>5:00pm to</td>
<td>Prof. Boby</td>
<td>AE, IEEE SJ IIT Madras, Chennai, India</td>
<td>Smart Electronic Interfacing Circuits for Capacitive Sensors</td>
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<td>6:00pm</td>
<td>George</td>
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<tr>
<td>6:00pm to</td>
<td>Prof. Arockia</td>
<td>DL, IEEE SC</td>
<td>Ultra Low Power Sensor Interfaces for IoT</td>
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<tr>
<td>7:00pm</td>
<td>Nathan</td>
<td></td>
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<tr>
<td>Time</td>
<td>Activities</td>
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<tr>
<td>7:00pm to 8:00pm</td>
<td>Prof. Pantelis Georgiou DL, IEEE SC Imperial College London, UK</td>
<td>Microchip Technology enabling Rapid Diagnostics for Infectious Diseases – From AMR to COVID-19</td>
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<tr>
<td>8:00pm to 9:00pm</td>
<td>Prof. Thomas Thundat DL, IEEE SC Empire Innovation Professor University at Buffalo NY, USA</td>
<td>Delivering Electrical Power to Distributed MEMS Sensors for Battery-free Operation</td>
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**September 20, 2022**  
(Room: 9WW 234/235/237, School of Engineering, Macquarie University)

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities</th>
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<tbody>
<tr>
<td>Morning Tea break 9:30am to 10:00am</td>
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<tr>
<td>10:00am to 12:00pm</td>
<td>Basic introduction of IoT project. Arduino &amp; Raspberry pi setup and programming it for sensor interfacing. Inter device communication and transmission of data.</td>
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<td>Lunch break 12:00pm to 1:00pm</td>
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<tr>
<td>1:00pm to 2:30pm</td>
<td>Uploading data to cloud using LoRa and WiFi. Development of API.</td>
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<tr>
<td>Afternoon Tea break 2:30pm to 3:00pm</td>
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<tr>
<td>3:00pm to 4:00pm</td>
<td>Data Visualization and Machine learning</td>
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Registration link for Day#1, September 19, 2022  
https://events.vtools.ieee.org/m/319410

Registration link for Day#2, September 20, 2022  
https://events.vtools.ieee.org/event/register/319499

Zoom link for Sep 19, 2022 02:00 PM Sydney  
https://macquarie.zoom.us/j/83659079311  
https://macquarie.zoom.us/u/keo9ZPXEUk